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FOLEY HOAG, LLP  
PATENT GROUP, WORLD TRADE CENTER WEST  
155 SEAPORT BLVD  
BOSTON, MA 02110

EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 08/26/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-19

**Office Action Summary**

Application No.

09/405,299

Applicant(s)

ALBERTE ET AL.

Examiner

Marie R. Yamnitzky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 34-58 and 65-103 is/are pending in the application.
- 4a) Of the above claim(s) 34-58, 65-70, 74 and 79-103 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 71-73 and 75-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 34-58 and 65-103 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. This Office action is in response to applicants' amendment filed June 11, 2003 (Paper No. 17), which amends the specification, cancels claims 1-33 and 59-64, amends claims 34-58 and 65-70, and adds claims 71-103.

Claims 34-58 and 65-103 are pending.

2. Applicants' arguments filed June 11, 2003 have been fully considered in making the rejections set forth in this Office action. Grounds of rejection have been modified to address applicants' arguments (particularly the rejection under 35 U.S.C. 112, first paragraph) and new prior art rejections not necessitated solely by applicants' amendment have been made.

Accordingly, this action is not made final.

3. Newly submitted claims 79-103 are directed to inventions that are independent or distinct from the invention originally claimed for the following reasons:

The invention originally claimed and the invention of newly submitted claims 79-102 are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product can be used in a materially different process such as applying the product to an object other than a plant, such as a boat or a medical device.

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The invention originally claimed and the invention of newly submitted claim 103 are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as an anti-fouling coating for various objects other than plants, such as boats and medical devices, and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 79-103 are withdrawn from consideration as being directed to non-elected inventions. See 37 CFR 1.142(b) and MPEP § 821.03.

4. The claims remain subject to an election of species. In Paper No. 11, applicants elected the species of a compound of general structure 1 wherein X represents -OH, Y represents O and Z represents an optionally substituted aryl, and elected the species of coating form wherein the

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coating is a liquid. Of pending claims 34-58 and 65-78, only claims 71-73 and 75-78 read on the elected species.

Claims 34-58, 65-70 and 74 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 11.

5. The disclosure is objected to because of the following informalities:

The meaning of the abbreviations PPCS, BPCS, TPPCS, BTCS are not given in the specification. The abbreviation PPCS is used in Fig. 2 and all four abbreviations are used in Fig. 3, but the specific compounds designated by these abbreviations are not clearly disclosed in the specification. It is not clear if any of these abbreviations corresponds to any of the compounds named in the paragraph bridging pages 2 and 3. The examiner notes that page 3, line 20 indicates that TPPC is an analog of zosteric acid, but the exact chemical structure of TPPC is not disclosed by way of chemical formula or name.

The last two lines on page 5 refer to  $R_9$  and  $R_8$  "as defined above" and line 9 on page 6 also refers to  $R_8$  as defined above, but no definition of  $R_9$  and  $R_8$  precedes these portions of the specification.

The second line on page 6 refers to "the alkyls described above" but the only alkyls specifically described prior to this portion of the specification are the alkyls recited with respect to specific compounds in the paragraph bridging pages 2 and 3. Are the alkyls in the specific compounds of the bridge paragraph the "alkyls described above" as referenced on page 6?

Page 7, lines 5 and 10 reference prior definitions of  $R_8$ ,  $R_9$  and  $R_{10}$  but no definitions of these variables are set forth prior to these portions of the specification.

Page 8, line 25 references a prior definition of  $R_8$  but no definition is set forth prior to this portion of the specification.

Line 2 of page 14 states " $R_{41}$  is as defined above" but there is no definition of  $R_{41}$  preceding this portion of the specification.

Appropriate correction is required.

6. Claims 71-73 and 75-78 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a coating comprising an effective amount of one or more of the compounds demonstrated by the examples to be anti-fouling, does not reasonably provide enablement for a coating comprising an effective amount of an antifouling compound selected from the myriad of other compounds within the scope of general structure 2 as defined in claims 71-73 and general structure 3 as defined in claim 75. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As taught on page 1 of the specification, there are more than 50,000 species of fungi, of which more than 10,000 species of fungi cause disease in plant.

As taught on page 5 of the specification, the exact mechanism of action is not known but studies indicate that the sulfate group of the compound plays a role.

As taught on page 9 of the specification, the term “coating” encompasses gas, vapor, liquid, paste, semi-solid or solid, examples of which include sprays, liquids, gases, vapors, gel, powders, waters, wetters, detergents and oils.

As taught on page 9 of the specification, an “effective amount” is an amount of antifouling compound that reduces the number of organisms that attach to a defined surface of a plant or plant component relative to the number that attach to an untreated surface.

As taught on page 11 of the specification, “plant” refers to any member of the plant kingdom, at any stage of its life cycle from seed to mature plant, and “plant component” refers to any portion or part of a plant.

As taught on page 11 of the specification, “plant pathogen” encompasses bacteria, virus, protist, algae or fungi that infect plants or plant components.

General structure 2 as defined in claims 71-73 and general structure 3 as defined in claim 75 encompass hundreds, if not thousands, of different compounds. Claim 73 is the most limited of the claims with respect to the identity of the anti-fouling compound, and even structure 2 as defined in claim 73 encompasses more than 200 compounds (6 possibilities for Z x 4 possibilities for Y x more than 8 possibilities for X because each of “-O(aryl)”, “-O(acyl)” and “-O(sulfonyl)” encompass more than one possibility x all the possibilities encompassed by “a salt thereof”).

Accordingly, the present claims encompass any liquid, gas, vapor, gel, powder, etc. that comprises at least one compound selected from the myriad of compounds encompassed by general structure 2 or 3 that, if applied to an unspecified member of the plant kingdom at an

unspecified stage in its life cycle, would be capable of reducing the number of organisms attached to the plant or plant component relative to an untreated control, wherein the organisms to be reduced are selected from bacteria, viruses, protist, algae or fungi that infect plants or plant components.

The present specification provides data pertaining to the use of seven compounds: methyl sulfate, octyl sulfate, zosteric acid, PPCS, BPCS, TPPCS and BTCS. Methyl sulfate, octyl sulfate and zosteric acid are not within the scope of structure 2 as defined in claims 71-73 but are within the scope of structure 3 as defined in claim 75. Methyl sulfate and octyl sulfate are compounds of structure 3 wherein X represents -OH, Y represents O and Z represents an alkyl group. Zosteric acid is a compound of structure 3 wherein X represents -OH, Y represents O and Z represents a substituted aryl group. The exact identity of PPCS, BPCS, TPPCS and BTCS is not clear so it is not certain if any of these four compounds are within the scope of structure 2 and/or structure 3.

As is apparent from the background discussion on page 1 of the specification, there is a lack of predictability in the art of anti-fouling materials for plants. The limited data presented in the specification are insufficient to demonstrate any predictability with respect to how each of the numerous compounds encompassed by general structures 2 and 3 would function in an anti-fouling capacity against any one of thousands of possible plant pathogens (fungi alone presenting over 10,000 possibilities) if used on any one of the numerous possibilities selected from members of the plant kingdom at any stage in the life cycle. Accordingly, it is the examiner's position that it would require undue experimentation on the part of one of ordinary skill in the art



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at the time of the invention to make and use the invention commensurate in scope with the present claims.

7. Claims 75-78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation imposed by the requirement for reduction of plant pathogens over about a 24 hour period is not clear because while claim 75 requires a reduction by a factor of about 4, each of claims 76-78 depends from claim 75 and requires a reduction by a factor greater than about 4. It is not clear if claim 75 should be interpreted as requiring a reduction by a factor of at least about 4, or if "about 4" should be interpreted broadly as encompassing about 8, about 10 and about 15 as required by claims 76-78, respectively.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 71, 72 and 75-78 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmerman et al. (5,384,176).

Zimmerman et al. disclose coatings comprising various phenolic acid sulfate esters.

Each of the compounds disclosed by Zimmerman et al. meets the limitations of a compound represented by general structure 3 as defined in present claim 75 wherein X represents -OH, Y represents O, and Z represents a substituted aryl. See the whole patent. In particular, see Fig. 1A, 1B, 1C, column 2, line 47-c. 3, l. 26 and c. 4, l. 59-c. 5, l. 10.

Of the compounds disclosed by Zimmerman et al., at least vanillic acid sulfate, having the formula shown in Fig. 1C, meets the limitations of a compound represented by general structure 2 as defined in present claim 71 and further defined in claim 72. Vanillic acid sulfate is a compound represented by general structure 2 wherein X represents -OH, Y represents O and Z represents a substituted heteroalkylphenyl (the methoxy group on the phenyl ring being a heteroalkyl group, and the carboxyl group on the phenyl ring being an optional substituent as allowed by the present claim language).

Claims 75-78 do not limit the specific plant pathogens that must be reduced. Since the compounds disclosed by the prior art are within the scope of compounds of general structure 3, with zosteric acid being specifically disclosed by Zimmerman et al. and in the present specification as an anti-fouling compound, it is the examiner's position that it is reasonable to expect that the coatings containing the prior art phenolic acid sulfate esters such as zosteric acid are capable of reducing at least some plant pathogens by a factor of 4, 8, 10 and 15 relative to a control upon application of the coatings to a plant surface.

10. Claims 75-78 are rejected under 35 U.S.C. 102(a) or 102(b) as being anticipated by applicants' admissions in the present specification.

Octyl sulfate is a known compound. As admitted in the specification, octyl sulfate has extensive industrial applications and is manufactured by several large chemical companies (p. 20, l. 25-26). A solution of octyl sulfate in water was available from Stepan Chemical Co. prior to the filing date of the present application as admitted by applicant (p. 21, l. 2-3). If the solution of octyl sulfate in water was available from Stepan Chemical Co. more than one year prior to the filing date of the present application, present claims 75-78, which read on a liquid coating comprising octyl sulfate are rejected under 35 U.S.C. 102(b). If the solution of octyl sulfate in water was available from Stepan Chemical Co. less than one year prior to the filing date of the present application, present claims 75-78 are rejected under 35 U.S.C. 102(a).

Further, any solution of octyl sulfate that was commercially available prior to the filing date of the present invention, and any disclosure in a printed publication of such a solution prior to the filing date of the present invention, anticipates a liquid coating comprising the sulfate under 35 U.S.C. 102(b) or 35 U.S.C. 102(a), depending upon whether the availability and/or printed disclosure occurred more than or less than one year prior to the filing date of the present application.

Claims 75-78 do not limit the specific plant pathogens that must be reduced. Since octyl sulfate is within the scope of compounds of general structure 3 and is specifically disclosed in the present specification as an anti-fouling compound, it is the examiner's position that it is reasonable to expect that the octyl sulfate solution available from Stepan Chemical Co. is

capable of reducing at least some plant pathogens by a factor of 4, 8, 10 and 15 relative to a control upon application of the solution to a plant surface.

11. Claims 75-78 rejected under 35 U.S.C. 102(b) as being anticipated by The Merck Index, Tenth Ed. (1983), pp. 876-877.

The only ingredient explicitly required for the coating of claims 75-78 is the compound represented by general structure 3. General structure 3 as defined in present claim 75, with claims 76-78 dependent therefrom, encompasses methyl sulfate and salts thereof. The present specification states that a "coating" may be a gas, vapor, liquid, paste, semi-solid or solid and that examples of coatings include "sprays, liquids, gases, vapors, gels, powders, waters, wetters, detergents and oils" (see page 9, lines 7-10).

The Merck Index discloses that methyl sulfate is an oily liquid that is soluble in water and alcohol, the barium salt of methyl sulfate is a crystal that is soluble in water and alcohol, and the calcium salt of methyl sulfate is a crystal that is soluble in water. Accordingly, methyl sulfate, the barium salt of methyl sulfate and the calcium salt of methyl sulfate each meet the limitations of a coating consisting of a compound represented by general structure 3 as defined in claim 75, with claims 76-78 dependent therefrom.

Since the Merck Index discloses that each of these compounds is soluble in water and, in the case of methyl sulfate and the barium salt thereof, alcohol, it is the examiner's position that it is reasonable to expect that any of these compounds is inherently capable of being released when in contact with a liquid or vapor and is inherently capable of reducing the number of plant

pathogens as required by present claims 75-78 upon application of the compound to a plant surface.

12. Claims 75-78 are rejected under 35 U.S.C. 102(b) as being anticipated by Walworth (4,053,610) or Häfeli (4,087,597).

General structure 3 as defined in claim 75, with claims 76-78 dependent therefrom, encompasses salts of methyl sulfate.

Walworth discloses methyl sulfate salts for use in compositions for controlling fungi. For example, see column 1, lines 9-54, c. 2, l. 27-28, 33-34, 55-56 and 59-62, and c. 7, l. 11-c. 8, l.

32. Based on the data set forth in Tables I and II, at least some of the compositions disclosed by Walworth meet the limitations set forth in the last four lines of claim 75 and the limitations recited in claims 76-78. For example, Table II shows that wheat treated with 500 ppm of a methyl sulfate salt and held 4 days at 45% relative humidity was clean for powdery mildew (a rating of 1.0) and barley treated with 500 ppm of the same methyl sulfate salt and held under the same conditions only had a trace of powdery mildew (a rating of 2.0).

Häfeli discloses anti-fouling compositions comprising methyl sulfate salts. See the whole patent. Although the prior art does not disclose the effect that the compositions would have on a plant pathogen if applied to a plant surface, it is the examiner's position that it is reasonable to expect that the prior art compositions comprising methyl sulfate salts are inherently capable of exhibiting the characteristics set forth in the last four lines of claim 75 and set forth in claims 76-78 absent evidence to the contrary.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 71-73 and 75-78 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 39-64, 66-74 and 89-91 of copending Application No. 09/405,269. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a coating with the only positively recited component of the coating being a compound. In the case of present claims 71-73, the compound is represented by general structure 2. In the case of present claims 75-78, the compound is represented by general structure 3. In the case of copending claims 39-64, 66-74 and 89-91, the compound is represented by general structure 1. There is substantial overlap between the compounds represented by general structures 1, 2 and 3 as defined in the claims.

With respect to the capabilities of the coating as directed to the intended use of the coating as set forth in the present claims, see copending claim 91 in particular.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY  
August 25, 2003



MARIE YAMNITZKY  
PRIMARY EXAMINER

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